Claims:

1. A paintball marker comprising:

a body having a paintball inlet, the body defining a barrel for receiving a paintball from the paintball inlet;

an inlet control device, wherein the inlet control device is movable between an open position wherein the inlet control device permits entry of a paintball through the paintball inlet and a closed position for chambering a paintball and wherein, in the closed position the inlet control device prevents entry of a paintball through the paintball inlet;

a firing system including a firing valve, wherein the firing valve is moveable between a firing position wherein the valve permits firing gas at a selected pressure to flow to the barrel, and a non-firing position wherein the firing valve prevents flow of firing gas to the barrel;

a first regulator, wherein the first regulator is fluidically connectable to a pressurized gas source and is configurable to provide gas at a first pressure, and wherein the first regulator is operatively connected to the firing valve for movement of the firing valve between the firing and non-firing positions; and

a second regulator, wherein the second regulator is fluidically connectable to the pressurized gas source and is configurable to provide gas at a second pressure, wherein the second pressure is lower than the first pressure, and wherein the second regulator is operatively connected to the inlet control device for movement of the inlet control device towards the closed position.

2. A paintball marker as claimed in claim 1, wherein the body defines a breech, the breech having the paintball inlet, wherein the barrel is downstream from the breech, and wherein the inlet control device is a bolt, wherein the bolt is slideable within the breech between the open and closed positions.

3. A paintball marker as claimed in claim 1, wherein the second pressure is selectable to provide a closing force for the inlet control device that is below a selected value to inhibit rupturing of a paintball if, during use, the paintball is confined by the inlet control device during movement of the inlet control device towards the closed position.

4. A paintball marker as claimed in claim 3, wherein the second regulator is operatively connected to the inlet control device for movement of the inlet control device towards the open position.

5. A paintball marker as claimed in claim 3, wherein the first regulator is operatively connected to the inlet control device for movement of the inlet control device towards the open position.

6. A paintball marker as claimed in claim 3, wherein the second pressure is between approximately 5 and approximately 50 psi.

7. A paintball marker as claimed in claim 3, wherein the first pressure is between approximately 50 psi and approximately 100 psi.

8. A paintball marker as claimed in claim 3, wherein the firing valve is moveable between a closed position for preventing flow of firing gas therethrough and an open position for permitting flow of firing gas to a chambered paintball, and wherein the paintball marker further comprises a striker that is movable between a first position wherein the striker is not engaged with the firing valve and a second position wherein the striker moves the firing valve to the open position, and wherein the striker is movable to at least one of the first and second positions by means of gas from the first regulator.

9. A paintball marker as claimed in claim 3, wherein the firing valve includes a housing and a spool, wherein the spool is moveable between a

closed position for preventing flow of firing gas through the firing valve and an open position for permitting flow of firing gas to a chambered paintball, and wherein the paintball marker further comprises a pneumatic cylinder that is engageable with the spool to move the spool between the open and closed positions, and wherein the pneumatic cylinder is actuatable by means of gas from the first regulator.

10. A paintball marker as claimed in claim 3, wherein the paintball marker further includes a firing valve actuation valve, wherein the firing valve actuation valve is movable between a first position wherein gas from the first regulator is prevented from flowing therethrough, and a second position wherein gas is permitted to flow from the first regulator to move the firing valve to the open position, and wherein the firing valve actuation valve is a solenoid valve.

11. A paintball marker as claimed in claim 3, wherein the paintball marker further includes a firing valve actuation valve, wherein the firing valve actuation valve is movable between a first position wherein gas from the first regulator is prevented from flowing therethrough, and a second position wherein gas is permitted to flow from the first regulator to move the firing valve to the open position, and wherein the firing valve actuation valve is a mechanically actuated valve.

12. A paintball marker having a trigger and a flow control valve, wherein the trigger is operatively connected to the flow control valve, the flow control valve including a housing defining an interior, the housing having a first, a second, a third, a fourth and a fifth port, wherein the ports are longitudinally spaced apart, wherein the housing further includes a first, a second, a third and a fourth housing projection extending into the interior longitudinally between the first and second ports, the second and third ports, the third and fourth ports and the fourth and fifth ports respectively, the housing projections having a first, a second, a third and a fourth housing sealing surface thereon

respectively, the flow control valve further including an elongate valve spool that is slidably mounted in the housing, the valve spool having a first, a second, a third and a fourth generally ring-shaped spool projection, wherein the spool projections are longitudinally spaced apart, the spool projections having a first, a second, a third and a fourth spool sealing surface thereon respectively for sealing engagement with the housing sealing surfaces, wherein the valve spool is moveable between a first position wherein the second and fourth spool sealing surfaces seal against the second and fourth housing sealing surfaces respectively to permit fluid communication between the third port and the fourth port and between the first port and the second port, and a second position wherein the first and third spool sealing surfaces seal against the first and third housing sealing surfaces respectively to permit fluid communication between the second port and the third port and between the fourth port and the fifth port,

wherein the valve spool is engageable by the trigger by at least one of a mechanical and a pneumatic connection for movement to at least one of the first and second positions.

13. A paintball marker as claimed in claim 12, wherein the trigger directly engages the valve spool.

14. A paintball marker as claimed in claim 12, wherein the housing sealing surfaces are generally cylindrical and the spool projections fit inside the cylindrical housing sealing surfaces.

15. A paintball marker as claimed in claim 12, wherein the housing sealing surfaces each include an edge and wherein the spool sealing surfaces are configured to sealingly mate with the edges.

16. A paintball marker as claimed in claim 15, wherein the spool sealing surfaces are generally frusto-conical.

17. A paintball marker as claimed in claim 15, wherein the spool sealing surfaces are generally toroidal.

18. A paintball marker as claimed in claim 12, wherein the housing sealing surfaces are generally frusto-conical.

19. A paintball marker as claimed in claim 18, wherein the spool sealing surfaces are generally frusto-conical.

20. A paintball marker as claimed in claim 18, wherein the spool sealing surfaces are generally toroidal.

21. A paintball marker as claimed in claim 12, wherein the paintball marker includes a barrel for holding a paintball, wherein the flow control valve is operatively connected to the firing valve for movement of the firing valve to an open position to release firing gas to the barrel for firing the paintball.

22. A paintball marker as claimed in claim 12, wherein the flow control valve operatively connected to an inlet control device, wherein the inlet control device is moveable to load and chamber a paintball.

23. A paintball marker as claimed in claim 12, wherein the flow control valve operatively connected to a bolt, wherein the bolt is moveable to load and chamber a paintball.

24. A paintball marker as claimed in claim 23, further comprising a second flow control valve that is operatively connected to a firing valve, wherein the firing valve is moveable between a closed position for preventing flow of firing gas therethrough and an open position for permitting flow of firing gas to a chambered paintball.

25. A paintball marker as claimed in claim 13, wherein the flow control valve is operatively connected to a firing valve, wherein the firing valve is moveable between a closed position for preventing flow of firing gas therethrough and an open position for permitting flow of firing gas to a chambered paintball.

26. A paintball marker having a gas storage chamber and an adjustment member, wherein the gas storage chamber is configured for storing gas for use in firing of a paintball, and wherein the adjustment member is moveably

connected to the gas storage chamber for movement within a range of adjustment, wherein the adjustment member occupies a selectable portion of the volume contained within the gas storage chamber.

27. A paintball marker as claimed in claim 26, wherein the gas storage chamber has a threaded aperture and the adjustment member includes a threaded closure member that mates with the threaded aperture, and wherein the threaded closure member is configured to engage the threaded aperture

28. A paintball marker as claimed in claim 26, wherein the adjustment member is infinitely adjustable within the range of adjustment.

29. A method for controlling pneumatic operations of a paintball marker, the paintball marker having a body having a paintball inlet and an inlet control device, wherein the inlet control device is moveable between an open position and closed position for controlling the flow of paintballs through the paintball inlet and for chambering a paintball, wherein the inlet control device is movable by means of an inlet control device actuator, wherein the inlet control device actuator is pneumatically operated, the paintball marker further including a firing valve, wherein the firing valve is moveable between an open position and a closed position and is movable to at least one of the open and closed positions by a firing valve actuator, wherein the firing valve actuator is pneumatically operated, the method comprising:

providing gas at a first pressure to the inlet control device actuator to move the inlet control device to an open position to permit entry of a paintball through the paintball inlet;

providing gas at a second pressure the pneumatic cylinder to move the inlet control device to a closed position to prevent entry of a paintball through the paintball inlet and to chamber a paintball, wherein the second pressure is selected to be sufficiently low to inhibit rupturing of a paintball if, during use, the paintball is confined by the inlet control device during movement of the inlet control device towards the closed position; and

providing gas at a third pressure to the firing valve actuator for movement of the firing valve to at least one of the open and closed positions, wherein the third pressure is higher than the second pressure.

30. A method for controlling pneumatic operations of a paintball marker as claimed in claim 29, wherein the second pressure is less than the first pressure.

31. A method for controlling pneumatic operations of a paintball marker as claimed in claim 29, wherein the second pressure is the same as the first pressure.

32. A method for controlling pneumatic operations of a paintball marker as claimed in claim 29, wherein the first pressure is the same as the third pressure.

33. A paintball marker having a trigger and a flow control valve, wherein the trigger is operatively connected to the flow control valve, the flow control valve including a housing defining an interior, the housing having a plurality of longitudinally spaced projections extending into the interior, the projections having housing sealing surfaces thereon, and an elongate valve spool that is slidably mounted in the housing, the valve spool having a plurality of longitudinally spaced generally ring-shaped spool projections, the spool projections having spool sealing surfaces thereon for sealing engagement with the housing sealing surfaces, wherein the valve spool is moveable between a first position and a second position to control the flow of pressurized gas through the valve in one direction and the exhaustion of gas through the valve in another direction, wherein the valve spool is engageable by the trigger by one of a mechanical and a pneumatic connection for movement to at least one of the first and second positions.

34. A paintball marker as claimed in claim 33, wherein the trigger directly engages the valve spool.

35. A paintball marker as claimed in claim 33, wherein the paintball marker includes a barrel for holding a paintball, wherein the flow control valve is operatively connected to the firing valve for movement of the firing valve to an open position to release firing gas to the barrel for firing the paintball.

36. A paintball marker as claimed in claim 12, wherein the flow control valve operatively connected to an inlet control device, wherein the inlet control device is moveable to load and chamber a paintball.

37. A paintball marker as claimed in claim 33, wherein the flow control valve operatively connected to a bolt, wherein the bolt is moveable to load and chamber a paintball.

38. A paintball marker as claimed in claim 37, further comprising a second flow control valve that is operatively connected to a firing valve, wherein the firing valve is moveable between a closed position for preventing flow of firing gas therethrough and an open position for permitting flow of firing gas to a chambered paintball.

39. A paintball marker as claimed in claim 34, wherein the flow control valve is operatively connected to a firing valve, wherein the firing valve is moveable between a closed position for preventing flow of firing gas therethrough and an open position for permitting flow of firing gas to a chambered paintball.